

ABSTRACT OF THE DISCLOSURE

A method for forming an ultra fine contact hole includes: forming a KrF photoresist pattern on a semiconductor substrate providing an insulation layer, the KrF photoresist pattern exposing a predetermined region for forming a contact hole on
5 the insulation layer; forming a chemically swelling process (CSP) chemical material-containing layer being reactive to the KrF photoresist pattern on an entire surface of the semiconductor substrate; forming a chemical material-containing pattern encompassing the KrF photoresist pattern by reacting the chemical material-containing layer with the KrF photoresist pattern through a chemically
10 swelling process to decrease a critical dimension of the contact hole; rinsing the semiconductor substrate; and increasing a thickness of a sidewall of the chemical material-containing pattern to a predetermined thickness by performing a resist flow process (RFP) that makes the chemical material-containing pattern flowed to decrease the critical dimension (CD) of the contact hole.